

LISTING OF THE CLAIMS

16. (Currently Amended) An optical instrument lighting system for imaging stained biological material fixed on a slide, comprising:

a light source having a first narrow band wavelength and a second narrow band wavelength different from the first narrow band wavelength; and
at least one lens disposed between the light source and the slide.

17. (Previously Presented) The system of claim 16, wherein the light source comprises a red LED.

18. (Previously Presented) The system of claim 16, wherein the light source comprises a green LED.

19. (Previously Presented) The system of claim 16, wherein the light source comprises an array of green LEDs.

20. (Previously Presented) The system of claim 16, wherein the light source comprises an array of red LEDs.

21. (Previously Presented) The system of claim 16, wherein the light source comprises an array of LEDs, the array including at least one green LED and at least one red LED.

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22. (Previously Presented) The system of claim 16, further comprising a third narrow band wavelength different from the first and second narrow band wavelengths.

23. (Previously Presented) The system of claim 16, wherein the first wavelength is between about 690 nm and about 750 nm.

24. (Previously Presented) The system of claim 16, wherein the second wavelength is between about 500 nm and about 600 nm.

25. (Previously Presented) The system of claim 16, wherein the light source comprises a first array of LEDs having the first narrow band wavelength, and a second array of LEDs having the second narrow band wavelength.

26. (Previously Presented) The system of claim 25, wherein the a first array of LEDs are formed on a first die, and the second array of LEDs are formed on a second die.

27. (Previously Presented) The system of claim 26, wherein the first and second dies are attached to a common substrate.

28. (Previously Presented) The system of claim 25, wherein the first and second LED arrays are formed on a single die.

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29. (Currently Amended) A LED array for use in an optical instrument lighting system for imaging a biological sample, the LED array comprising:

a substrate;

a first narrow band wavelength LED formed on a first die, the first die attached to the substrate; [[and]]

a second narrow band wavelength LED formed on a second die, the second die attached to the substrate, the first narrowband wavelength different from the second narrowband wavelength; and

a plurality of lenses, including a first lens positioned over the first die, and a second lens positioned over the second die.

30. (Previously Presented) The LED array of claim 29, comprising multiple green LEDs.

31. (Previously Presented) The LED array of claim 29, comprising multiple red LEDs.

32. (Currently Amended) The LED array of claim 29, comprising at least one red LED and at least one [[red]] green LED.

33-35. Cancelled.

36. (Currently Amended) The LED array of claim 29, wherein a first plurality of LEDs including the at least one green LED are formed on the [[a]] first die, and a second plurality of

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LEDs including the at least one red LED are formed on the ~~[[a]]~~ second die~~[[, the first and second dies being attached to a common substrate]]~~.

37. (Currently Amended) An optical instrument lighting system for imaging stained biological material fixed on a slide, comprising:

a first array of one or more LEDs having a first narrow band wavelength;

a second array of one or more LEDs having a second narrow band wavelength different from the first narrow band wavelength; ~~[[and]]~~

a third array of one or more LEDs having a third narrow band wavelength different from the first and second narrow band wavelengths, each of the first, second and third LED arrays being formed on a single substrate; and

at least one lens disposed between the slide and the respective first, second and third LED arrays.

38. (New) The system of claim 16, the at least one lens comprising a Koehler illuminator.

39. (New) The system of claim 16, the light source comprising an LED microchip module.

40. (New) The system of claim 39, wherein the LED microchip module comprises a substrate,

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an array of LEDs, the array including one or more red LEDs formed on a first die and one or more green LEDs formed on a second die, the first and second dies attached to the substrate, and
a plurality of lenses, including a first lens positioned over the first die, and a second lens positioned over the second die.

41. (New) The system of claim 40, wherein the first and second dies are embedded in a potting material, and wherein the first and second lenses are attached to the potting material.

42. (New) The LED array of claim 29, wherein the first and second dies are embedded in a potting material, and wherein the first and second lenses are attached to the potting material.